

### **REMARKS**

By this Amendment, claims 1 and 12 have been amended, and claims 24 and 25 have been canceled without prejudice or disclaimer. Accordingly, claims 1-23 are now pending in the present application.

While gratefully acknowledging the allowability of claims 6-11 and 18-23, Applicant submits that all the pending claims are patentable over the art of record.

#### **I. Double Patenting**

Claims 24 and 25 have been objected to under 37 C.F.R. § 1.75 for being a substantial duplicate of claims 3 and 4, respectively. Claims 24 and 25 have been canceled, and therefore the rejection is moot.

#### **II. Claim Rejections - 35 U.S.C. § 102**

Claims 1-4, 12-17, 24 and 25 are rejected under 35 U.S.C. § 102(b) as being anticipated by Moring et al. (US 6,159,368; hereinafter “Moring”). Applicant traverses this rejection based on the following comments.

Claim 1 recites in part:

A cartridge for nucleic acid separation and purification which comprises: a cylindrical main body formed of a cylindrical part and a bottom part having an opening; and a nucleic acid-adsorptive porous membrane held on the bottom part,

a rim part of the nucleic acid-adsorptive porous membrane being held by a molding material forming the cylindrical part of the cylindrical main body,

wherein the cylindrical part is integrally formed with the bottom part and the nucleic acid-adsorptive porous membrane so as to prevent breakage and poor sealing of the nucleic acid-adsorptive porous membrane.

Moring does not disclose or suggest that “the cylindrical part is integrally formed with the bottom part and the nucleic acid-adsorptive porous membrane so as to prevent breakage and poor sealing of the nucleic acid-adsorptive porous membrane,” as recited in claim 1. For example, Moring only discloses a multi-well microfiltration apparatus comprising a column plate 10, a discrete filter element 8, and a drip-director plate 14. The column plate 10 and the drip-director plate are not integrally formed (see e.g., Abstract, col. 11, lines 26-43 and FIG. 3).

Furthermore, the cartridge of the amended claim 1 provides the following outstanding effects: a special facility for adhering such as an ultrasonic welder is unnecessary. Further, problems are prevented, such as breakage and poor sealing of the membrane. Please see descriptions of the specification in paragraph [0017], LL. 16-24 of the present application. Such outstanding effects of the amended claim 1 are not disclosed or suggested in Moring.

Accordingly, Moring does not disclose each and every feature of claim 1, and Applicant submits that claim 1 is patentable for at least this reason.

Claim 12 recites in part:

the cylindrical body comprises: a cylindrical main body having a bottom part supporting the nucleic acid-adsorptive porous membrane; and a discharge part connecting a bottom part opening formed in the bottom part and the second opening;

the bottom part has a bottom face and a plurality of protrusions formed on the bottom face;

at least a part of a top part of each protrusion supports the nucleic acid-adsorptive porous membrane, and the top part of each protrusion slopes down to the discharged part in a radial direction of the bottom part;  
and

a closer portion of the nucleic acid-adsorptive porous membrane to the bottom part opening is made more displaced towards the discharge part during use.

Moring does not disclose or suggest “at least a part of a top part of each protrusion supports the nucleic acid-adsorptive porous membrane, and the top part of each protrusion slopes down to the discharged part in a radial direction of the bottom part,” as recited in claim 12.

The cartridge of the amended claim 12 provides the following outstanding effects:

The washing liquid is rapidly discharged from the discharged part without remaining on the bottom part of the cylindrical main body. The discharged recovery liquid is prevented from being contaminated with the washing liquid.

Please see descriptions of the specification in paragraphs [0034], [00163]-[00165], and FIGS. 12, 13, 15, and 16 of the present application. Such outstanding effects of the amended claim 12 are not disclosed or suggested in Moring.

For example, FIG. 6 of Moring does not show that the fin-like support buttresses 58a-58c “slopes down to the discharged part in a radial direction of the bottom part,” as recited in claim 12 (see e.g., col. 17, lines 29-57). Accordingly, Moring does not disclose this feature of claim 12. Applicant submits that claim 12 is patentable for at least this reason.

Applicant submits the remaining claims are patentable at least by virtue of their respective dependencies on claims 1 and 12.

Claims 1 and 2 are rejected under 35 U.S.C. § 102(b) as being anticipated by Mori et al. (US 2003/0170664; hereinafter “Mori”). Applicant traverses this rejection based on the following comments.

Similarly to Moring, Mori does not disclose or suggest that “the cylindrical part is integrally formed with the bottom part and the nucleic acid-adsorptive porous membrane so as to prevent breakage and poor sealing of the nucleic acid-adsorptive porous membrane,” or that “a

portion forming the cylindrical part which is the other of the two parts that sandwich and hold the nucleic acid-adsorptive porous membrane is integrated with the bottom member,” as recited in claim 1.

For example, according to Mori, when the unit for isolation and purification of nucleic acid is produced, an additional joint step is required, including use of an adhesive, screw cramp, and fusion bond bay ultrasonic heating. Please see descriptions in paragraph [0078] of the reference Mori. This joint step is not necessary for the present invention because of the integrally formed structure.

On page 2 of the Office Action, the Examiner asserts that the patentability of a product-by-process claim is determined based on the structural features of the product itself. However, FIG. 2 clearly shows that lid 20, or any other part, is not integrally formed with the bottom face 102 and membrane 30. Thus, Mori does not disclose each and every structural feature of the claimed product.

Furthermore, the cartridge of the amended claim 1 provides the following outstanding effects: a special facility for adhering such as an ultrasonic welder is unnecessary. Further, problems are prevented, such as breakage and poor sealing of the membrane. Please see descriptions of the specification in paragraph [0017], LL. 16-24 of the present application. Such outstanding effects of the amended claim 1 are not disclosed or suggested in Mori.

In view of the above, Mori does not disclose each and every feature of claim 1, and Applicant submits that claim 1 is patentable for at least this reason.

Applicant submits that claim 2 is patentable at least by virtue of its dependency on claim 1.

**II. Claim Rejections - 35 U.S.C. § 103**

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Moring.

However, Applicant submits that claim 5 is patentable at least by virtue of its dependency on claim 1.

**III. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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